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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/682,829	10/23/2001	Radislav Alexandrovich Potyrailo	RD-28307	9182

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EXAMINER	
CROCKFORD, KIRSTEN ANNE	
ART UNIT	**PAPER NUMBER**
1762	7

DATE MAILED: 10/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

T.P

Office Action Summary	Application No. 09/682,829	Applicant(s) POTYRAILO ET AL.	
	Examiner Kirsten Crockford	Art Unit 1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 June 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-51* is/are pending in the application.

4a) Of the above claim(s) *27-31,33,35,43,45,47 and 49-51* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26,32,34,36,44,46 and 48* is/are rejected.

7)☒ Claim(s) *37-42* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed December 12, 2001 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. Copies of the Freud reference, Dickinson reference, Ballantine reference, Smith reference, *Organic Coatings* reference, *Surface Coatings Vol 2* reference, and *Coating technology handbook* reference were not located in the file, therefore the information referred to therein has not been considered and the references have been crossed through on the submitted PTO-1449. If Applicant submits copies of these references, then the information therein will be considered by the Examiner.

Election/Restrictions

2. Claims 27-31, 33, 35, 43, 45, 47, and 49-51 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species of spin coating, linear coating head, and spray nozzle, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 5.

3. It is noted that claim 43 was included as a generic claim in the election of species restriction requirement mailed on May 31, 2002, however upon further consideration, it was determined that claim 43 is dependent upon claim 45 directed to the non-elected spin coating method. A telephone call was made to Noreen Johnson on September 20, 2002 to state that

claim 43 would be grouped as a non-elected claim and to give her an opportunity to elect a different group; the call did not result in a change of elected groups.

Claim Objections

4. Claims 18, 32, 36, 44, and 48 are objected to because of the following informalities:

Claim 18 is objected to as being a duplicate of claim 5.

Claim 32 is objected to as being a duplicate of claim 1.

Claims 36, 44, and 48 are objected to because they are methods "for creating a combinatorial coating library," however it appears that the claims are actually directed to methods of *using* a combinatorial coating library instead of creating a library. The Examiner suggests replacing the word "creating" with --using-- to clarify the claims.

Claim 48 is also objected to because it appears that the word --of-- should be added after "plurality" and before "curing" in line 5.

Appropriate correction is required.

5. Claims 37-42 are objected to as being in improper form because each of the claims depend on claim 39, which is a dependent claim that depends upon itself. The Examiner is unable to determine the subject matter to be examined in these claims. Accordingly, the claims have not been further treated on the merits.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 4 and 34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 4, line 3, the term "small" is vague and indefinite because it is a relative term of degree and the metes and bounds of this term are not known, nor do they appear to be defined in the specification.

Claim 34 is vague and indefinite because it is a system/apparatus claim but is dependent upon claim 36 which is directed to a method. It is not standard U.S. practice to have an apparatus claim depend from a method claim; dependent claims must be directed to similar classes of invention as the claims from which they depend.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-11, 16, 18, 21-22, 25, 32, 34, 36, 46, and 48 are rejected under 35 U.S.C. 102(b) as being anticipated by Schultz et al. (US 6,004,617).

As to claims 1, 32, 36, 46, and 48, Schultz et al. discloses a combinatorial coating system and method comprising a coating system operatively coupled to at least one of a plurality of coating materials, and a curing/reaction system operative to apply at least one of a plurality of reaction environments to each of a plurality of regions, where each of the plurality of regions has at least one of the materials and at least one of the reaction environments (col. 4, lines 7-37 and

col. 10-13). Reaction of the applied coating materials meets the limitation of curing the coating materials. With respect to claims 2 and 21, Schultz et al. teaches reacting the plurality of regions on the substrate using the same curing environment -- heating, but different curing characteristics -- temperature, at col. 27, lines 29-32. With respect to claim 3, Schultz et al. teaches that "the reaction conditions at different reaction regions can be controlled independently" (col. 10, lines 57-59). The change in reaction temperatures, pressure, etc. would constitute different curing environments.

With respect to claim 4, Schultz et al. teaches using polymeric materials at col. 28, lines 17-25. As to claims 5 and 18 and the method of coating, Schultz et al. teaches spray and vapor coating methods at col. 16, lines 51-67. As to claims 6-11 and 25, Schultz et al. discloses a heating element operably positionable adjacent to one or more substrates and can be variable or constant in heat/temperature distribution (col. 27, line 29 to col. 28, line 4). The heating element inherently has a geometrical shape and can be deposited in any pattern so that it covers different predefined regions on the substrate. As to claim 16, Schultz et al. teaches that the reaction/curing environment may be thermal radiation or microwave radiation at col. 26, lines 27-50.

With respect to claim 22, Schultz et al. teaches that its system is capable of applying a different curing source and different curing characteric to each region of the substrate; it is noted that the claim does not require that the different curing sources are provided simultaneously. As to claim 34, Schultz et al. teaches applying the coating layer in a gradient within a predetermined region (col. 10, lines 30-33, and col. 12, lines 15-19). With respect to claim 46, Schultz et al. teaches applying multi-layer coatings by applying a first component to a region, and then a second component, and then reacting the two components (col. 10, lines 19-30). Prior to

reaction of the two components, a multi-layer coating is formed. Schultz et al. also teaches applying multiple coating layers at col. 14, lines 50-54.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 19, 20, 26, and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schultz et al. as applied to claims 1-11, 16, 18, 21-22, 25, 32, 34, 36, 46, and 48 above, and further in view of the admitted state of the art.

Schultz et al. lacks the disclosure of a dip coating apparatus comprising a plurality of wells, and involving method steps of immersing a plurality of substrates held by substrate holders in a coating material disposed within the wells. However, it is noted that Schultz et al. teaches that the substrate may be coated using a number of different mechanical techniques, including dip coating (col. 18, lines 40-46). One having ordinary skill in the art would have been motivated to look to the prior art for conventional means for dip coating substrates to use in the method of Schultz et al. Applicant's specification on page 8, in the first paragraph, states that a delivery mechanism comprising a plurality of wells, in which a plurality of different materials may be disposed, and the substrates may be dipped therein, is a "conventional liquid-handling device." It would have been obvious to one having ordinary skill in the art to have used the dip coating method taught as conventional by Applicant as the means for dip coating in the method and system of Schultz et al. with the expectation of successful results since Schultz et al. is silent

with respect to a dip coating apparatus and method that may be used and therefore one would expect successful results with any known dip coating apparatus.

12. Claims 12-15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schultz et al. as applied to claims 1-11, 16, 18, 21-22, 25, 32, 34, 36, 46, and 48 above, and further in view of Courtney et al. (US 4,390,615).

As to claims 12-15 and 17, Schultz et al. discloses the use of masks to aid in depositing coating material on only certain predetermined regions of the substrate (col. 18-21), however Schultz et al. lacks a teaching of using masks to aid in providing particular reaction conditions to only certain predetermined regions of the substrate. It is well known in the coating art to use masks, in particular spatial masks, to prevent particular regions of a coated substrate from being irradiated. Courtney et al. is cited for its teachings of using a mask to prevent radiation from curing its coating in unexposed areas (col. 4, lines 19-28). It would have been obvious for one having ordinary skill in the art to have used masks, particularly spatial masks, to initiate reactions only on certain predetermined regions on the substrate in the system and method of Schultz et al. because Schultz et al. particularly teaches only exposing target regions to the reaction conditions (col. 27, lines 23-28) and because Schultz et al. teaches various irradiation techniques as means to react the components on the surface (col. 26, lines 27-37), therefore one would expect that any means of preventing radiation from reaching certain non-target regions would be useful in Schultz et al.'s invention. The radiation transmission would inherently vary along at least one dimension of the mask.

13. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schultz et al. as applied to claims 1-11, 16, 18, 21-22, 25, 32, 34, 36, 46, and 48 above, and further in view of Poullos et al. (US 5,200,230).

Schultz et al. lacks the disclosure of a curing/reactive environment comprising a scanning mirror system having a mirrored surface positionable relative to an incoming radiation beam, wherein the mirrored surface is positionable to direct the incoming radiation beam to a selected on of the plurality of regions associated with the coating layer. It is noted however that Schultz et al. teaches in col. 27, lines 23-28, using laser thermolysis where bursts of energy of a predetermined duration and intensity are delivered to target regions on the substrate. One skilled in the art would have been motivated to look to the prior art in the area of lasers to determine a system capable of delivering bursts of laser energy to targeted regions on a substrate. Poullos et al. discloses a method of targeting laser radiation on a particular surface of a coating to fuse/bake the coating (col. 1, lines 43-49). The laser apparatus of Poullos et al. makes use of scanning mirrors and waveguides to position the laser at the desired surface of the coating (col. 5-6). It would have been obvious for one having ordinary skill in the art to have used the laser apparatus of Poullos et al. in combination with the system of Schultz et al. because Schultz et al. broadly discloses using laser thermolysis but does not provide details of the apparatus used, therefore one would expect that any laser performing a similar task would be operational in Schultz et al.'s system.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hawley's Condensed Chemical Dictionary, pages 331-332, is cited to demonstrate

that "cure" is defined as "To change the physical properties of a material by chemical reaction, or vulcanization," and thus the term curing is inclusive of the occurrence of chemical reactions. Landry et al. (US 5,084,896) is cited to demonstrate the state of the art with respect to using lasers comprising waveguides.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kirsten Crockford whose telephone number is 703-306-5461. The examiner can normally be reached on Monday to Thursday and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on 703-308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1193.

kac
September 30, 2002

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